CHANGES TO THE CLAIMS

1. (Original) A programmable conductor apparatus, comprising:

a memory card comprising a programmable conductor material capable of providing a plurality of memory storage areas; and

a read/write assembly having a plurality of conductive elements for contacting said memory card at said plurality of memory storage locations to enable read/write operations at said memory storage areas.

2. (Original) A programmable conductor apparatus as in claim 1 further comprising a housing within which said read/write assembly is located,

said housing including an opening for receiving said memory card and an internal mechanism for positioning a memory card relative to the conductive elements of said read/write assembly.

3. (Original) The apparatus of claim 1 wherein said programmable conductor material comprises a chalcogenide glass.

4. (Original) The apparatus of claim 1 wherein said memory card has predefined memory storage areas.

5. (Original) The apparatus of claim 4 wherein at least some of said predefined memory storage areas are programmed permanent memory storage areas.

6. (Original) The apparatus of claim 4 wherein at least some of said predefined memory storage areas are temporary storage areas.

7. (Original) The apparatus of claim 4 wherein at least some of said predefined memory storage areas are permanent storage areas and at least some of said predefined memory storage areas are temporary storage areas.

8. (Original) The apparatus of claim 3 wherein said chalcogenide glass comprises between 20 to 30 percent germanium and between 70 to 80 percent selenium, and is doped with silver.

9. (Original) The apparatus of claim 1 wherein said memory card further comprises a conductive layer extending over a first surface of said card, said conductive elements contacting a second opposite surface of said card.

C1 cont'd.

10. (Original) The apparatus of claim 2 wherein said housing further comprises a door at said opening.

11. (Original) The apparatus of claim 1 wherein said conductive elements comprise metal elements.

12. (Original) The apparatus of claim 11 wherein said conductive elements contain silver.

13. (Original) The apparatus of claim 12 wherein said conductive elements are connected to respective access transistors through conductive polysilicon elements.

14. (Original) The apparatus of claim 1 wherein said read/write assembly further comprises an access transistor for coupling a respective conductive element to a digit line, in response to an enabling voltage provided to a word line to which a gate of said access transistor is connected.

15. (Original) The apparatus of claim 2 wherein said memory card further comprises an alignment structure and said housing further comprises an internal structure

which cooperates with said alignment structure to align said memory card relative to said read/write assembly.

16. (Original) The apparatus of claim 15 further comprising a position control mechanism within said housing which senses the location of said card relative to said read/write assembly and adjusts the relative position of said memory card and read/write assembly to achieve alignment.

17. (Currently Amended) The apparatus of claim 16 wherein said alignment structure comprises a pattern of ~~predetermined~~ preprogrammed memory storage areas ~~preprogrammed with a program code~~, said position control mechanism including a pattern of conductive elements for reading said ~~program code~~ preprogrammed memory storage areas and adjusting said relative position until said ~~predetermined program code~~ pattern of preprogrammed memory storage areas is properly read.

Cl Canc.

18. (Original) The apparatus of claim 16 wherein said alignment structure comprises optically readable alignment marks provided on said memory card, said position control mechanism including an optical reader for reading said optical marks.

19. (Original) The apparatus of claim 15 wherein said alignment structure comprises at least one mechanical feature on said memory card which engages with at least one mechanical element within said housing when said memory card is aligned with said read/write assembly.

20. (Original) The apparatus of claim 15 further comprising a circuit for preventing operation of said read/write assembly until alignment is achieved.

21. (Original) A memory card comprising:

a sheet of programmable conductor material which can be programmed to define a plurality of storage areas, each having a resistance state corresponding to a stored

20

logic value, said sheet being configured to be insertable into and removed from a card reading device.

22. (Original) A memory card of claim 21 wherein said programmable conductor material comprises a chalcogenide glass.

23. (Original) A memory card of claim 22 wherein said chalcogenide glass comprises between 20 to 30 percent germanium and between 70 and 80 percent selenium, and is doped with silver.

24. (Original) A memory card of claim 21 wherein said memory card has predefined memory storage areas.

Cl cont'd.

25. (Original) A memory card of claim 24 wherein at least some of said predefined memory storage areas are programmed permanent memory storage areas.

26. (Original) A memory card of claim 24 wherein at least some of said predefined memory storage areas are temporary storage areas.

27. (Currently Amended) A memory card ~~off~~ of claim 24 wherein at least some of said predefined memory storage areas are permanent storage areas and at lest some of said predefined memory storage areas are temporary storage areas.

28. (Original) A memory card of claim 21 wherein said removable memory card further comprises a conductive layer extending over a first surface of said card, said conductive elements contacting a second opposite surface of said card, a second opposite surface of said card being adapted to be connected to a read/write assembly.

29. (Original) A memory card of claim 21 wherein said memory card further comprises an alignment structure for aligning said card with a read/write assembly.

21

30. (Original) A memory card of claim 29 wherein said alignment structure comprises a pattern of predetermined memory storage areas preprogrammed with a program code.

31. (Original) A memory card of claim 29 wherein said alignment structure comprises optically readable alignment marks.

32. (Original) A memory card of claim 29 wherein said alignment structure comprises a mechanical feature on said memory card.

33. (Original) A card read/write structure for a programmable conductor memory card, said structure comprising:

Cl Cont.

a read/write assembly, said assembly comprising a plurality of conductive elements for respectively contacting programmable conductor storage areas of said memory card to enable read/write operations at said areas.

34. (Original) A structure of claim 33 further comprising a housing having a card entry opening, said read/write assembly being located within said housing.

35. (Original) A structure of claim 33 wherein said conductive elements comprise metal elements.

36. (Original) A structure of claim 33 wherein said conductive elements comprise silver elements.

37. (Original) A structure of claim 33 wherein said read/write assembly further comprises an access transistor for coupling a respective conductive element to a digit line, in response to an enabling voltage provided to a word line to which a gate of said access transistor is connected.

38. (Original) A structure of claim 34 further comprising an internal structure within said housing which cooperates with an alignment structure on a memory card to provide alignment of a memory card relative to said read/write assembly.

39. (Original) A structure of claim 38 further comprising a position control mechanism within said housing which senses the location of said card relative to said read/write assembly and adjusts the relative position of said memory card and read/write assembly to achieve alignment.

40. (Original) A structure of claim 39 wherein said position control mechanism includes a pattern of conductive elements at said read/write assembly for reading a program code provided at an alignment storage area of a memory card, said position control mechanism adjusting relative position of a memory card and read/write assembly until said program code is properly read.

41. (Original) A structure of claim 39 wherein said position control mechanism includes an optical reader for reading optical alignment marks on a card.

42. (Original) A structure of claim 38 wherein said internal structure comprises at least one mechanical element within said housing which engages with a least one mechanical feature on said memory card to produce alignment.

43. (Original) A structure of claim 34 further comprising a latch mechanism for holding a card within said housing.

44. (Original) A structure of claim 43 further comprising a release mechanism for releasing said latch mechanism to allow removal of a card from within said housing.

45. (Currently Amended) A method of operating a programmable conductor card, said method comprising:

providing a memory card comprising a programmable conductor memory material; ~~and~~

defining a plurality of memory storage areas with a plurality of conductive elements; and

engaging said card with ~~a~~ said plurality of conductive elements to read or write data from or to said memory storage areas in said memory card.

46. (Original) The method of claim 45, further comprising aligning said memory card with said plurality of conductive elements before commencing a read or write operation.

47. (Original) The method of claim 45, further comprising writing to at least one of said memory storage areas in a manner which causes temporary data storage.

48. (Original) The method of claim 45, further comprising writing to at least some of said memory storage areas in a manner which causes permanent data storage.

49. (Original) The method of claim 45, further comprising writing to at least some of said memory storage areas in a manner which causes temporary data storage and writing to some of said memory storage areas in a manner which causes permanent data storage.

50. (Original) The method of claim 46, further comprising forming an alignment structure on said memory card and aligning said memory card using said alignment structure.

51. (Original) The method of claim 50 wherein said alignment structure comprises preprogrammed memory storage areas of said card.

52. (Original) The method of claim 50 wherein said alignment structure comprises optical alignment marks.

53. (Original) A processor apparatus, comprising:

a processor;

a programmable conductor memory system connected to said processor, said memory system comprising:

a read/write assembly located inside a housing and having a plurality of conductive elements for contacting respective memory storage areas of a programmable conductor material memory card at said plurality of memory storage areas to enable read/write operations at said memory storage areas;

said housing including an opening for receiving a said memory card and an internal mechanism for positioning a received memory card relative to the conductive elements of said read/write assembly.

54. (Original) The processor apparatus of claim 53 further comprising said memory card.

55. (Original) The processor apparatus of claim 54 wherein said programmable conductor material comprises a chalcogenide glass.

56. (Original) The processor apparatus of claim 54 wherein said memory card has predefined memory storage areas.

57. (Original) The processor apparatus of claim 56 wherein at least some of said predefined memory storage areas are programmed permanent memory storage areas.

58. (Original) The processor apparatus of claim 56 wherein at least some of said predefined memory storage areas are temporary storage areas.

59. (Original) The processor apparatus of claim 56 wherein at least some of said predefined memory storage areas are permanent storage areas and at least some of said predefined memory storage areas are temporary storage areas.

60. (Original) The processor apparatus of claim 57 wherein said chalcogenide glass comprises between 20 to 30 percent germanium and between 70 to 80 percent selenium, and is doped with silver.

Cl amp.

61. (Original) The processor apparatus of claim 54 wherein said memory card further comprises a conductive layer extending over a first surface of said card, said conductive elements contacting a second opposite surface of said card.

62. (Original) The processor apparatus of claim 53 wherein said housing further comprises a door at said opening.

63. (Original) The processor apparatus of claim 53 wherein said conductive elements comprise metal elements.

64. (Original) The processor apparatus of claim 53 wherein said conductive elements comprise silver elements.

65. (Currently Amended) The processor apparatus of claim 53 wherein said read/write assembly further comprises an access transistor for coupling a respective conductive element to a digit line, in response to an enabling voltage provided to a ~~word line~~ wordline to which a gate of said access transistor is connected.

66. (Original) The processor apparatus of claim 54 wherein said memory card further comprises an alignment structure and said housing further comprises an internal

structure which cooperates with said alignment structure to align said memory card relative to said read/write assembly.

67. (Original) The processor apparatus of claim 66 further comprising a position control mechanism within said housing which senses the location of said card relative to said read/write assembly and adjusts the relative position of said memory card and read/write assembly to achieve alignment.

68. (Currently Amended) The processor apparatus of claim 67 wherein said alignment structure comprises a pattern ~~predetermined~~ of preprogrammed memory storage areas ~~preprogrammed with a program code~~, said position control mechanism including a pattern of conductive elements for reading said ~~program code~~ preprogrammed memory storage areas and adjusting said relative position until said ~~predetermined program code~~ pattern of preprogrammed memory storage areas is properly read.

69. (Original) The processor apparatus of claim 67 wherein said alignment structure comprises optically readable alignment marks provided on said memory card, said position control mechanism including an optical reader for reading said optical marks.

70. (Original) The processor apparatus of claim 66 wherein said alignment structure comprises at least one mechanical feature on said memory card which engages with at least one mechanical element within said housing when said memory card is aligned with said read/write assembly.

71. (Original) The processor apparatus of claim 66 further comprising a circuit for preventing operation of said read/write mechanism until alignment is achieved.

72. (Previously Added) A programmable resistance memory card, comprising:

a programmable resistance material layer capable of defining a plurality of programmable memory storage areas spaced about said layer, said layer having a first

21

surface which is electrically engageable with conductive elements of a conductor assembly for operating said memory storage areas.

73. (Previously Added) The memory card of claim 72, further comprising:

a bottom electrode attached to a second surface of said layer.

74. (Previously Added) The memory card of claim 73, wherein said bottom electrode is a common electrode for said memory storage area.

75. (Previously Added) The memory card of claim 72, wherein said memory storage areas comprise at least one of temporary and permanent memory storage.

Cl and D.

76. (Previously Added) The memory card of claim 72, wherein said layer comprises chalcogenite.

77. (Previously Added) The memory card of claim 72, wherein said layer comprises between 20-30 percent germanium, between 70 and 80 percent selenium, and is doped with silver.

78. (Currently Amended) The memory card of claim 73, wherein said bottom electrode further comprises ~~a conductor such as~~ silver.

79. (Currently Amended) The memory card of claim 73, wherein said bottom electrode further comprises ~~a conductor such as~~ tungsten.

80. (Previously Added) The memory card of claim 72, wherein said layer further comprises alignment areas.

81. (Previously Added) The memory card of claim 80, wherein said alignment areas are formed as memory storage areas programmed with a pattern.

82. (Previously Added) The memory card of claim 81, wherein said alignment areas are formed as alignment marks.

83. (Previously Added) The memory card of claim 72, wherein said memory card has active circuit elements.

84. (Previously Added) The memory card of claim 72, wherein at least some of said memory storage areas are non volatile.

85. (Previously Added) The memory card of claim 72, wherein said first surface of said card is adapted to directly contact said conductive elements.